

REMARKS

In view of the following remarks, Applicant respectfully requests reconsideration and allowance of the subject application. This Response is believed to be fully responsive to all issues raised in the Office Action mailed March 26, 2010. Claims 9, 15, 30, 31 and 42 are currently amended. Claim 43 is canceled. Claims 1-3, 5-13, 15-21, 23-25, 27-42 and 45-46 are pending.

Multiple Dependent Claims 9, 31, 42 and 43

The Office objected to claims 9, 31, 42 and 43 as depending on other multiple dependent claims. In response, Applicant currently amends claims 9, 31 and 42 and cancels claim 43. Applicant also notes that the dependency of claim 31 is corrected to account for cancellation of claim 26.

Rejections under §112: Claims 15-21 and 30

The Office rejected claims 15-21 and 30 and noted that claim 15 should depend on claim 13 and that claim 30 should depend on, for example, claim 23 (noting that claim 26 is canceled). Applicant appreciates the Office's attention to these details and currently amends claims 15 and 30 to correct these dependencies.

Rejections under §103

In the Office Action of March 26, 2010, the Office rejected claims 1-3, 5-8, 10-13, 15-21, 23-25, 27-30, 32-41 and 45-46 under §103 as being unpatentable over Allen (US 6449950) in view of Mayleben (US 6443715). Applicant treats the foregoing rejection as covering the objected to and rejected claims as mentioned above, which have been either amended or canceled. Accordingly, Applicant response pertains to claims 1-3, 5-13, 15-21, 23-25, 27-42 and 45-46.

Standards

Per MPEP §2141.02: "In determining the differences between the prior art and the claims, the question under 35 U.S.C. 103 is not whether the differences

themselves would have been obvious, but whether the claimed invention as a whole would have been obvious.” (emphasis in original)

Per MPEP §2143.02: “A rationale to support a conclusion that a claim would have been obvious is that all the claimed elements were known in the prior art and
5 one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded nothing more than predictable results to one of ordinary skill in the art.” (emphasis added)

10 *Mayleben Reference (US 6443715)*

The Mayleben reference describes a water pump. As stated at col. 3, lines 25-30: “A permanent magnet motor stator D is secured to base B in surrounding relationship to impeller C. A permanent magnet motor ring 20 is attached to a steel ring 22 on impeller C for cooperating with stator D to impart rotation to impeller C
15 when the motor is energized.” The electric motor is formed by both the stator D and the magnet ring 20 on the impeller C. Hence, the impeller C is a functioning and essential component of the motor. Water passes the impeller/motor component C en route to the volute 12, which is part of the base B.

The stator D is encapsulated in plastic material 132, which is logically an
20 insulator. In other words, as the pump is configured to pump water, it must insulate the water from the electrical components and sources, which is achieved explicitly via the plastic material 132. The plastic material 132 is covered by a motor cover E, which has an opening 104 (see Figs. 14-16) for receipt of a power cord (not shown). Specifically, as stated at col. 5, lines 7-14:

25 FIGS. 14-16 show motor cover E having a passage 104 for receiving a power cord that supplies power to motor stator D. Motor cover E has a circular opening 106 for receiving integral sleeve 32 on the stator housing as shown in FIGS. 1 and 2. The peripheral wall of opening 106 has a circumferential groove 108 therein for receiving a sealing ring
30 110 that engages the outer peripheral surface of sleeve 32 as shown in FIGS. 1 and 2.

As to the circuit board 131, it appears that the description of this item is in error, specifically the board 131 of Fig. 25 is not configured properly for operation

with the other components of the pump; the disclosure is confusing. At col. 6, lines 1-23, the Mayleben reference states:

5 FIG. 25 shows a generally flat annular printed circuit board 131 having a plurality of circumferentially-spaced screw receiving slots 133 therein for receiving screws to secure board 131 to posts 148 on stator assembly D. Three spaced-apart Hall effect sensors 135 are attached to the inner periphery of board 131 so that they are located in very close proximity to and aligned with the upper end of permanent magnet motor ring 20 on impeller C for use in controlling current flow to the three-phase coil assembly on the stator for operating the motor. Three MOSFETS 137 extend from board 131 and are received in openings 139 of FIGS. 17 and 19 in the plastic material housing for stator D for controlling current to the stator coils. Circuitry on the printed circuit board, along with a microprocessor, responds to input from the float switches, Hall effect sensor, MOSFETS and other input controls to control operation of the brushless permanent magnet motor. The float switches are connected with the circuit board in a known manner.

20 Three spaced slot openings 141 in plastic material 132b are provided to connect the three motor leads for the three phase stator coils with the circuitry on printed circuit board 131. The printed circuit board 131 is secured to stator post 148 by screws 143 as best shown in FIG. 2.

25 As to the board 131, as described and shown: (i) the four slots 133 do not correspond to the three posts 148; (ii) the three MOSFETS 137 do not match the openings 139 of the plastic base; (iii) it is not understood how the Hall effect sensors could align with the top of the magnet ring 20 if the MOSFETS 137 occupy the openings 139; (iv) it is unclear how the three MOSFETS 137 and three Hall effect sensors 135, as arranged, would cooperate with features of the plastic material 132, which encapsulates and houses the stator D; and (v) while openings 141 are shown in the plastic material 132 for receipt of "three motor leads" and connection with the board 131, it is unclear how or where these three motor leads would attach.

Insufficient Evidence of PCB Between Volute and Compressor Wheel

35 Applicant submits that the Allen reference and the Mayleben reference fail to provide evidence sufficient to support a *prima facie* case of obviousness. The main reason being, the Mayleben reference does not provide evidence of the claimed circular printed circuit board disposed coaxial to a volute of the compressor housing

between said volute and the compressor wheel (see independent claims 1, 10, 23, 32 and 45). Instead, the Mayleben reference shows a volute 12 that is axially below the printed circuit board 131. As evidence of record is insufficient to teach or suggest the claimed arrangement of the circuit board, volute and compressor wheel of independent claims 1, 10, 23, 32 and 45, “as a whole”, Applicant submits that the pending claims are not obvious over the Allen reference in view of the Mayleben reference. Applicant reiterates the “design choice” arguments and case law of Applicant’s prior response as if set forth fully herein.

10 *Mayleben Reference’s Additional Deficiencies*

As mentioned, the Mayleben reference has errors, specifically with respect to description of the circuit board 131 of Fig. 25. Accordingly, assumptions must be made as to how components cooperate.

Further, the motor cover E of the Mayleben reference has a tortuous passage for receipt of power wires. How these wires would connect and to what they connect is not clearly described or shown. Applicant notes, emphatically, that all of the pending independent claims (claims 1, 10, 23, 32 and 45) recite “plug connectors”. Applicant finds insufficient evidence of any type of plug connector in the Mayleben reference (see, e.g., MPEP §2143.02).

Yet further, the motor of the Mayleben reference consists of a magnet ring mounted to the impeller C and a stator D encapsulated in plastic material 132. In other words, the impeller C is not driven by a motor, it is part of the motor. This may very well be the reason why the volute of the water pump of the Mayleben reference is mounted below the motor and, therefore, below the circuit board.

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Evidence in Instant Application as to Issues with Lead Wires

In Applicant’s prior response, Applicant respectfully directed the Office to the instant application at page 3, which describes problems solved and advantages of the particular exemplary configurations; specifically, (a) simplification to alleviate a need to thread lead wires, “for the power connection of the electric motor through one or more holes of the center housing” and (b) to alleviate a “need to pass

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boundary conditions for the guidance of the lead wires, e.g. like sharp edges, at which a short circuit of the lead wires may occur”.

Alone, or in combination, the Allen reference and the Mayleben reference fail to address such issues. The water pump of the Mayleben reference explicitly
5 requires threading three power wires through a passage (104): first downwardly then horizontally (i.e., a 90 degree bend) and finally upwardly to reach a printed circuit board (131). Sharp edges are shown explicitly in the drawings of the Mayleben reference, which could lead to shorts as the pump vibrates during operation.

As explained in detail above, the Mayleben reference has errors that touch on
10 how the water pump is actually wired. Specifically, the printed circuit board shown in Fig. 25 is not configured to cooperate with components described and shown in the other figures (Figs. 1-24 and 26-31); how is it wired? The description is confusing and, if the Mayleben reference is alleged to support a *prima facie* case, inappropriate assumptions must be made.

Conclusion

For at least the foregoing reasons, pending claims 1-3, 5-13, 15-21, 23-25, 27-42 and 45-46 are believed to be in condition for allowance. Applicant respectfully
20 requests reconsideration and prompt issuance of the present application. Should any issue remain that prevents immediate issuance of the application, the Examiner is encouraged to contact the undersigned attorney to discuss the unresolved issue.

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Respectfully Submitted,

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